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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/045,866

10/29/2001

Yuichi Komachi

1103

20808

7590

07/02/2004

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EXAMINER

QADERI, RUNA S

ART UNIT

PAPER NUMBER

3737

DATE MAILED: 07/02/2004

6

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/045,866

Applicant(s)

KOMACHI ET AL.

Examiner

Runa S Qaderi

Art Unit

3737

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2 and 4.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Specification

The abstract of the disclosure is objected to because it exceeds the 150 words limit. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

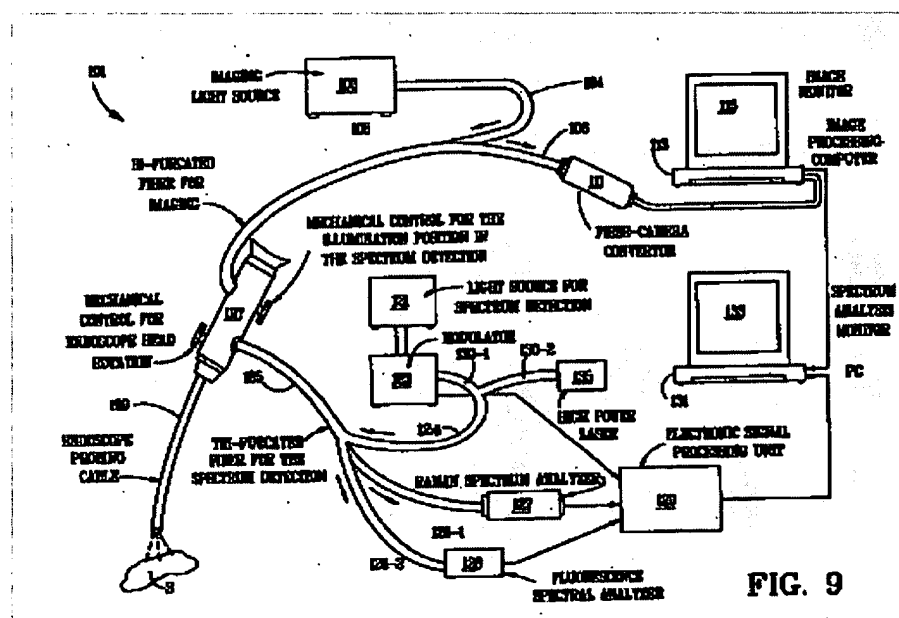
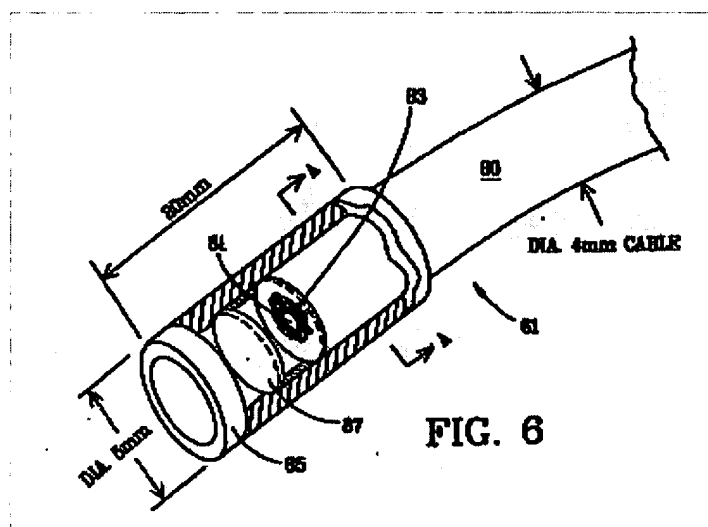
A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Alfano et al. (5,293,872).

Alfano et al. teaches method and corresponding apparatus for distinguishing of matter adhered to an inside of a vessel using Raman spectroscopy. With reference to applicant's claim 1, figures 6 and 9 of Alfano et al. below clearly teach a guiding apparatus 109 including a main body, a flexible insert portion extending from said main body portion and having a window formed in a distal end thereof, and a channel extending through said main body portion and insert portion and reaching said window, said insert portion being able to be inserted into said vessel; said Raman analysis system including a flexible channel 125/80 to be inserted into said channel and whose distal end is faced with said window, an excitation optical fiber 81 and a light receiving fiber 83 which are both received in said insert cable, a light source 121/135 connected o

basal end of said excitation optical fiber, and a spectroscope 127 connected to a basal end of said light receiving optical fiber; and an excitation light emitted from said light source 121/135 projected through said window via said excitation optical fiber 81 and



Raman scattered by impinging on said matter adhered to the inside wall of said vessel, said scattered light being made incident to said window and spectrally analyzed by said

spectrometer 127 via said light receiving optical fiber 83, and thus said matter adhered to the inside wall of said vessel being analyzed, column 7 through 9, more specifically column 7 lines 20-33 and column 8. With respect to claim 2 figures 6 (above) and 7 and column 7 lines 20-33 clearly diagram and discuss, respectively, a single number of said excitation optical fiber 81 and plural number of said light receiving optical fibers 83; and at a distal end portion of said insert cable, said single number of excitation optical fiber 81 is arranged at a central area thereof and said plural number of light receiving optical fibers 83 are arranged in such a manner as to surround said excitation optical fiber 81. Finally with respect to claim 8 Alfano et al. column 9 lines 9-28 recites that the endoscope 141 (interpreted as the guiding apparatus of the applicant) is sized and shaped to fit within an artery or other blood vessel.

Claim Rejections - 35 USC § 103

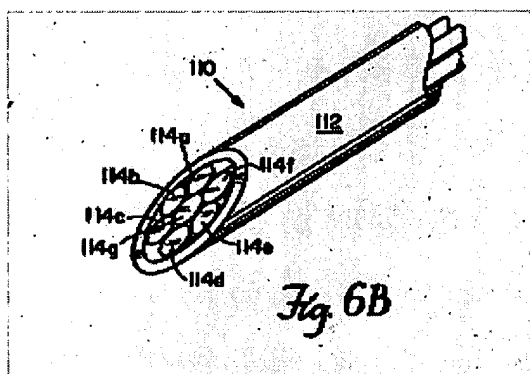
The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alfano et al. (US 5,293,872) in view of Janes et al. (US 5,280,788)

Alfano et al. teaches an apparatus for distinguishing matter adhered to the inside wall of a vessel using Raman spectroscopy. With respect to claims 4 and 5 Alfano et al. does not explicitly recite said optical means for deflecting an optical axis of said

excitation light in a direction intersecting a center axis of said bundle of light receiving optical fibers is disposed at a distal end of said excitation optical fiber, wherein a distal end face of excitation optical fiber is slanted with respect to an axis of said excitation optical fiber and said distal end face is provided as said optical means. The Janes et al. reference teaches a device for optical diagnosis of tissue using a probe with a bundle of optical fibers having a beveled surface, column 6 lines 52-62. Figure 6A of Janes et al. below diagram the bundle of optical fibers having a beveled surface.



The beveled or tapered structure of the distal ends of the optical fibers shown above satisfies the applicant's limitation to said optical means for deflecting an optical axis of said excitation light in a direction intersecting a center axis of said bundle of light receiving optical fibers is disposed at a distal end of said excitation optical fiber, wherein a distal end face of excitation optical fiber is slanted with respect to an axis of said excitation optical fiber and said distal end face is provided as said optical means. It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the beveled or slanted optical fiber surface of Janes et al. into the probe of Alfano et al. because such a structure provides for controlled light transmission

and detection as taught by Janes et al., column 1 lines 45-47 and column lines 61-64. Therefore providing a more efficient analysis of the tissue.

Finally the combination of Alfano et al. in view of Janes et al. does not explicitly teach said excitation optical fiber arranged at an outer side in a radial direction of said bundle of light receiving optical fibers. It would have been obvious to a person of ordinary skill in the art to provide for such an arrangement because applicant's function of maximizing emission and detection of light by the slanted or beveled optical fiber surface is satisfied by the structure of Alfano et al. in view of Janes et al.

Claims 3, 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alfano et al. (US 5,293,872) in view of Wach et al. (US 6,222,970).

Alfano et al. teaches an apparatus for distinguishing matter adhered to the inside wall of a vessel using Raman spectroscopy. Alfano et al., figure 1, diagrams a filter 17 disposed between excitation optical fiber and light source.

Alfano et al. does not teach a film-like excitation filter adhered to the distal end of excitation optical fiber and a film-like filter adhered to the distal end of the receiving optical fiber as claimed in 6 and 7. In reference to claim 3 Alfano et al. does not teach the light receiving plate with corresponding film-like filter adhered to it for excitation and receiving optical fibers.

Wach et al. teaches filtering optical fibers by depositing thin films directly onto the ends of the optical fiber (or adhered to distal ends as claimed by applicant) to be used to produce high-quality, high performance filters, see Abstract. It would have been

obvious to a person of ordinary skill in the art to have deposited/adhered the film-like filters onto the ends of optical fibers as taught by Wach et al. into the probe system of Alfano et al. because it allows effective and efficient manipulation of the light delivery and reception region especially during Raman analysis as taught by Wach et al. Furthermore it would have been obvious to have alternatively adhered the film-like filters on the light plate/window of the probe because it provides the equivalent function of filtering the illumination and detection light thereby improving Raman scattering analysis.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

O'Rourke et al. (US 5,710,626) teaches a rugged fiber optic probe for Raman measurement.

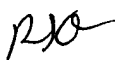
O'Rourke et al. (US 5,402,508) teaches fiber optic probe having fibers with endfaces formed for improved coupling efficiency and method using the same.

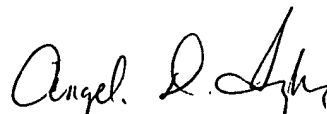
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Runa S. Qaderi whose telephone number is (703) 605-4285. The examiner can normally be reached on M-F 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Angela D. Sykes can be reached on (703) 308-5181. The fax phone

number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


RSQ



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